The Builder.

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WE were requested some time since by Messrs. Wright and Co., to inspect their quarries at Anston, in Yorkshire, and say whether or not the stone which they are there raising, is the same as that used at the new Houses of Parliament, and we accordingly proceeded there on our way home from Lincoln. Anston (divided locally into Church Anston and Chapel Anston), is about twelve miles from the Mashro' (Rotherham) station on the Midland Railway, and about six miles from Sheffield. Six hours will take you from Euston-square to Mashro', a distance of 172 miles. Going there from Lincoln and not desiring a coach journey, we were forced to come first to Derby, and then back by the Midland line to Mashro', thus traversing two sides of a nearly equilateral triangle. At Derby there are some very interesting buildings, both modern and ancient, and at Rotherham the old church, which is well known, has many points well worthy of notice: when there are fewer archæological matters afloat than is the case just now, we will give a few notes on both these places. Suffice it for the present to say, touching the latter place (and we say it in the hope of leading the attention of the authorities to the fact), that parts of the external stone work of the church are being restored with less care and skill than are desirable. We strongly suspect that no artistical eye overlooks the workmen. It is a common mistake amongst even well-intentioned church-custodians to suppose that for restorations, where the old work can be appealed to, the operative alone is necessary. It is a mistake which is operating most disastrously at this moment in various parts of the country.

The quarries in question adjoin those on the estate of the Duke of Leeds, held by Mr. Grissell: a hedge alone divides the estates; and we at once discharge the duty we undertook by saying distinctly, that the stone is identically the same as that used for the "Palace of Parliament," and the Lincoln's Inn Hall. We may further add, as not useless information, that the stone can be got out in blocks of from 3 ft. to 3 ft. 6 in. in depth, and of such length and width as may be needed; and that it can be brought to the water's side in London at 1s. 10d. per foot cube. In March next a railway will be opened within two miles, by which means, probably, its cost will be lessened in many localities.

Thus far, then, in what may be considered as mainly a personal question,—although it is one to which a reply may be useful to many of our readers. Another, however, and more general inquiry has been opened in connection with this subject, and that is,—is the Anston stone (whether north or south of the hedge), a good and lasting material for building? And in endeavouring to obtain the solution of this, the only party to whom we owe duty is the public. It would seem that few people know anything about stone. Until recently very little *endeavour*, even, was made to select the best,—and the deplorable state of many of our public buildings erected only a few years ago, shows how costly will be the result of this inattention. That we should have a right knowledge of stone which is coming into extensive use is of the utmost importance.

Some of our readers, doubtless, observed, in the *Times*, a fortnight ago, a letter asserting that the Anston stone used in the Lincoln's-inn Hall was fast decaying; and that the stone in the new Houses of Parliament was understood to be so likewise; and remarking, that as the selection was made on the recommendation of an expensive commission, it was necessary, on public grounds, that the matter should be investigated.

This letter, with some similar communications, was first sent to us, but not being able at the moment to inquire personally into the truth of the statement, and knowing that the publication of such an assertion, true or false, was likely to injure (and doubtless will injure) a valuable property, we declined inserting it. It was accordingly sent to the *Times*, the editor of which either did not see the same objection, or took means to satisfy himself upon it.

The commission appointed to inquire with reference to the selection of stone for building the new Houses of Parliament consisted, it will be remembered, of Mr. Barry, Sir Henry De la Beche, Dr. Smith, the geologist, and Mr. C. H. Smith, practical sculptor. To aid them in determining the physical and chemical properties of the various specimens obtained, they called in Professors Daniell and Wheatstone, and we do not hesitate to assert, that if these six gentlemen so associated were not competent for the task, there are no other persons in England who are so.

The report was an interesting and valuable one. It shewed, amongst other things, the same material, whether sandstone or limestone, sound in one building and unsound in another, even of lessage. It pointed out, with respect to the decomposition of stones employed for building purposes, that it is effected according to the chemical and mechanical conditions to which such stones are exposed. "As regards the sandstones that are usually employed for such purposes, and which are either composed of quartz or silicious grains, cemented by silicious, argillaceous, calcareous, or other matter, their decomposition is effected according to the nature of the cementing substance, the grains being comparatively indestructible. With respect to limestones composed of carbonate of lime, or the carbonates of lime and magnesia, either nearly pure or mixed with variable proportions of foreign matter, their decomposition depends, other things being equal, upon the mode in which their component parts are aggregated, those which are most crystalline being found to be the most durable, while those which partake least of that character suffer most from exposure to atmospheric influences."

The varieties of limestones, termed oolites, being composed of oviform bodies, cemented by calcareous matter of a varied character, will, of necessity, suffer unequal decomposition, unless such oviform bodies and the cement be equally coherent and of the same chemical composition. The limestones which are usually termed "shelly," from being formed of either broken or perfect fossil shells, cemented by calcareous matter, suffer decomposition in an unequal manner, in consequence of the shells, which, being for the most part crystalline, offer the greatest amount of resistance to the decomposing effects of the atmosphere.

The report gave a long list of public buildings visited, detailing the time of their erection, the stone of which they are constructed, and their present condition; with tables of analyses, and experiments on various stones.

It was seen that the decomposition of stone proceeded very differently, according as the building may be situated in the town or the country, the state of the atmosphere in populous and smoky towns producing it more rapidly than is the case in an open country.

They said, that if called on to select a *class* of stone for the more immediate object of their inquiry, they should give the preference to the *limestones* on account of their more general uniformity of tint, their comparatively homogeneous structure, and the facility and economy of their conversion to building purposes; and of this class, they said, they would prefer those which are most chrystalline, agreeing with Professor Daniell, who states, that "the nearer the magnesian limestones approach to equivalent proportions of carbonate of lime and carbonate of magnesia, the more crystalline and better they are in every respect."

The commissioners closed their report by recommending, on the ground of crystalline character, combined with a close approach to the equivalent proportions of carbonate of lime and carbonate of magnesia—for uniformity in structure—facility and economy in conversion, and for advantage of colour, the magnesian limestone of Bolsover Moor and its neighbourhood, as the most fit and proper material to be employed in the new Houses.

The structure on which they chiefly founded their opinion of its durability was Southwell Minster, Nottingham, of the eleventh or beginning of the twelfth century (not the tenth as stated in the commissioners' tables), which we saw a few days ago, as noticed elsewhere, and found it certainly in a good state of preservation.

The constituents of the Bolsover stone were shewn to be—

Silica	3·6
Carbonate of lime	51·1
Carbonate of magnesia	40·2
Iron, alumina	1·8
Water and loss	3·3

The Anston stone (not Anstone stone, we may as well remark, by-the-way), which was ultimately adopted, instead of the Bolsover, is part of the same formation.* The magnesian limestone borders, and partly overlaps, the east side of the coal formation, and extends north and south, in the shape of a narrow strip, with partial interruption, from Nottingham at one end to North Shields at the other. It is hardly necessary to say that it is not all good alike: great difference is to be found even in the same quarry, and discrimination must be exercised in its selection. There is in fact no stone which can be used without discrimination,—even granite quarries have defective places which are avoided by competent judges. Surface stone generally is not good, and it is quite possible that at the time when the call for the Anston stone was the greatest, some of the top bed was sent to London, and may serve to account for the appearance presented by parts of the new hall in Lincoln's-Inn Fields, which is certainly very unsatisfactory,—as, for example, the whole of the cornice of the hall, council room, &c., on both sides.

That the *good* part of Anston stone is good, would seem beyond a doubt.

* The places are about eight miles apart.

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